Stigma and Health

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Psychometric Properties of the Italian Tendency to Avoid Physical Activity and Sport Scale Relationship to Weight Stigma and Body Esteem

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Physical inactivity is a growing problem that contributes to a range of negative health consequences, such as psychological and physical issues and weight gain. Recent evidence suggests that the tendency to avoid physical activity is associated with weight stigma and low (body-related) self-esteem. New cross-culturally validated psychometric scales for assessing nonparticipation in physical activity could help researchers and practitioners better understand the psychosocial factors contributing to avoidance of physical activity and for the more efficient promotion of an active lifestyle. The objective of the present study was to evaluate the psychometric properties of the Italian Tendency to Avoid Physical Activity and Sport Scale (TAPAS) by conducting a confirmatory factor analysis and calculating the scale's internal consistency and convergent/discriminant validity. An Italian sample (N = 235; 57.4% females, M_{age} = 35.17 years; SD = ±10.83) participated in an online survey. The measures included the TAPAS, Rosenberg Self-Esteem Scale, Depression Anxiety Stress Scale–21, Weight Self-Stigma Questionnaire, Body Esteem Scale, and Exercise Addiction Inventory–Revised. The results of the confirmatory factor analysis supported a first-order one-factor scale, and the TAPAS showed good internal consistency. Additionally, the TAPAS was positively associated with body mass index, weight stigma, anxiety, stress, and depression; it was negatively associated with self-esteem and body self-esteem. The results suggest that the TAPAS is a psychometrically reliable and valid measure for assessing the tendency to avoid physical activity and sport among Italian-speaking individuals. The study also expands the knowledge of psychosocial factors involved in avoiding sports and participation in physical activity.

Clinical Impact Statement

The Tendency to Avoid Physical Activity and Sport Scale (TAPAS) can be used to better understand the motivations underlying physical inactivity, such as weight stigma and appearance concerns. The TAPAS may help develop programs and interventions. The TAPAS could help counter the decline in physical activity rates among the Italian population and the resulting health implications.

Keywords: avoidance of physical activity, Italian validation, psychometric properties, Tendency to Avoid Physical Activity and Sport Scale, weight stigma

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The research was conducted according to the Declaration of Helsinki for medical research involving human participants and was approved by University Niccolò Cusano in Rome Ethics Committee, Italy. All participants gave their online consent to participate in the study. The identity of the participants was anonymous, and the data were stored in an encrypted online archive, accessible only to the authors of the present study. Informed consent was obtained from all participants involved in the study. The authors are aware that their identities can influence their research approach and provide the reader with information about their backgrounds. With respect to gender, when the article was drafted, two authors self-identified as women and nine authors as men. With respect to race and cultural background, 10 authors self-identified as

continued

Regular participation in physical activity (PA) contributes to better physical health and well-being (Lewis & Hennekens, 2016; Manferdelli et al., 2019), including improved cardiovascular health, increased strength and flexibility, and better cognitive function (Aubert et al., 2018; Durstine et al., 2013). Additionally, regular PA is important in preventing and managing many chronic diseases, such as high blood pressure and cardiovascular diseases, with many other health and social benefits (Ács et al., 2016; Guthold et al., 2018).

The positive effects of PA extend beyond physical health by improving individuals' psychological health (Fox et al., 2000; Harvey et al., 2018). For example, some research suggests that regular PA reduces the incidence of, and helps to manage, adverse mental health outcomes such as anxiety, stress, and depression (Warburton & Bredin, 2017). Regular PA is also associated with improved self-concept, enhanced self-esteem, and increased cognitive performance in academic and occupational settings (Lubans et al., 2016; Zamani Sani et al., 2016).

Despite evidence suggesting a wide range of physical and psychological benefits of regular PA participation, currently a significant proportion of the world's population is not close to meeting recommended and/or beneficial levels of physical activity (Bull et al., 2020; Katzmarzyk et al., 2022). The World Health Organization guidelines, illustrated by Bull et al. (2020), recommend that adults participate weekly in a minimum of 2.5–5 hr of moderate-intensity exercise, 1.30–2.50 hr of intense PA, or a combination of moderate-intensity and vigorous-intensity aerobic PA (Bull et al., 2020). Conservative estimates suggest that 1.5 billion individuals are physically inactive (Bull et al., 2020; Katzmarzyk et al., 2022; WHO Expert Consultation, 2004). Therefore, there is an urgent need to understand and address the factors influencing physical inactivity, including strategies and interventions that promote physical activity for those who currently do not meet the recommended guidelines.

Research on barriers to PA and sport has predominantly focused on economic and environmental factors such as cost, accessibility, and availability (Sallis et al., 2006; Somerset & Hoare, 2018). Despite efforts to address these structural constraints, there continues to be a decline in PA participation rates, suggesting that psychosocial factors, such as weight stigma (Chalabaev et al., 2023), motivation (Herazo-Beltrán et al., 2017), or physical appearance concerns, may influence the avoidance of PA and sport (Bevan et al., 2022; Saffari et al., 2024). Evidence suggests that psychosocial factors contribute to avoiding PA (Bevan et al., 2022; Fan et al., 2023a; Saffari et al., 2024). Moreover, physical appearance-related concerns may act as a psychological barrier, negatively influencing an individual's perception of their body image and self-esteem and, consequently, affecting PA behaviors (Bevan et al., 2022; Fan et al., 2023a; Saffari et al., 2024; Zartaloudi et al., 2023). Previous evidence has shown significant associations between weight stigmatization, physical appearance concerns, and the tendency to avoid and participate in PA and sports (Bevan et al., 2021, 2023; Fan et al., 2023a; Saffari et al., 2024).

Weight stigma encompasses the social devaluation and denigration experienced by individuals because of their excess body weight or adiposity (Alimoradi et al., 2020; Rubino et al., 2020). This phenomenon gives rise to negative attitudes, stereotypes, prejudice, and discriminatory behaviors directed toward those who are perceived as overweight or obese (Alimoradi et al., 2020; Rubino et al., 2020). Weight stigma is prevalent across everyday settings, and individuals can face weight stigma in schools, workplaces, and health care settings (Puhl & Brownell, 2003). Weight stigma can be categorized into experienced stigma (e.g., discrimination, teasing) or internalized stigma (e.g., self-stigma), both of which have been found to be related to the avoidance of PA and sport (Bevan et al., 2021; O'Brien et al., 2016). Weight stigmatization has also been associated with lower motivation for exercise and avoidance of PA (Han et al., 2018; Jackson & Steptoe, 2017; Yi et al., 2024), suggesting that negative weight-related perceptions may act as a psychological barrier. Similarly, concerns related to physical appearances, such as body dissatisfaction and fear of negative evaluation of appearance by others (Han et al., 2018; Sabiston et al., 2014), have emerged as influential psychosocial factors in PA avoidance and participation (Bevan et al., 2021; Fan et al., 2023a; Saffari et al., 2024).

In line with fear avoidance models (Vlaeyen et al., 2016), individuals who tend to avoid PA may experience negative psychological and emotional states associated with PA, consequently hindering PA participation (Vlaeyen et al., 2016). This phenomenon can also be interpreted through the lens of hedonic theory, which postulates that individuals tend to engage in activities that generate positive feelings while avoiding those that induce negative feelings (Bevan et al., 2021; Rhodes & Kates, 2015). Therefore, individuals who experience or internalize weight stigma, appearance concerns, or fear placing their bodies into environments they feel may judge them would be more likely to avoid such settings (e.g., gyms).

Individuals with obesity tend to report greater rates of avoidance of PA (Ekkekakis et al., 2016). Therefore, it is necessary to identify psychosocial factors (e.g., weight stigma) that contribute to avoiding PA across all weight categories, including individuals with obesity (Ajibewa et al., 2022). Comparatively, weight stigma and body

White/European and one as East Asian.

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dissatisfaction may also have a role among individuals obsessively exercising, or in some cases referred to as problematic exercise or exercise addiction, resulting in negative physical and psychological consequences (e.g., Szabo, 2010).

Measuring the Tendency to Avoid Physical Activity

The research gap in psychosocial factors contributing to the tendency to avoid PA and sports could be attributed to the lack of psychometrically valid measures designed to examine the tendency to avoid PA and sports due to weight and appearance-related concerns (Bevan et al., 2022; Fan et al., 2023a; Saffari et al., 2024). Therefore, valid and reliable scales are necessary to explore the associations between PA avoidance, weight stigma, and appearance-related concerns (Bevan et al., 2022; Fan et al., 2023a; Saffari et al., 2024). Psychometrically sound scales can help researchers and practitioners understand antecedents and design programs and interventions to address psychosocial barriers in PA avoidance and participation, promoting better physical and mental population health outcomes.

To overcome existing limitations regarding the lack of available measures, Bevan et al. (2022) developed and psychometrically tested the 10-item Tendency to Avoid Physical Activity and Sport Scale (TAPAS) with a sample of 581 English-speaking Australian university students. The results indicated that the TAPAS demonstrated good internal consistency and reliability with a single-factor solution. The validity of the scale has been further supported by observations indicating that lower levels of enjoyment of physical activity are associated with weight stigma (Bevan et al., 2021), and avoidance of PA and sports is associated with greater levels of psychological distress (e.g., anxiety, stress, depression; Bevan et al., 2023) and with a lower positive self-image (i.e., body-self, self-esteem; Bevan et al., 2022). Notably, the TAPAS has also been evaluated for its invariance concerning variables such as gender, supporting the scale to be applicable in different contexts and ensuring that assessments are consistent and comparable across different demographic groups (Fan et al., 2023a, 2023b; Saffari et al., 2023). Moreover, the TAPAS has been found to possess good discriminant validity (Saffari et al., 2023). It has been successfully validated in different languages and cultural contexts, such as the Chinese context and language (Fan et al., 2023a). These characteristics make the TAPAS a promising instrument for examining the tendency to avoid physical activity and sport due to appearance and weight-related concerns and helping to bridge the gap in understanding such behaviors.

The Present Study

The present study addressed the lack of a validated measure for physical activity (PA) avoidance in an Italian context. In Italy, sedentary levels have increased from 22.3% in 2020 to 27.2% in 2021 (Istituto nazionale di statistica, 2022). The study's main objective was to translate the English version of the TAPAS into an Italian version that fits well with the Italian culture. In particular, the study explored the associations between weight stigma and the tendency to avoid PA to provide a localized context to researchers and health practitioners. The study aimed to help support the reduction of psychosocial barriers to physical activity adherence by focusing on the influence of weight stigma. Therefore, the present study assessed the psychometric properties of the TAPAS through several techniques, including internal consistency, factor structure, convergent and discriminant validity, and measurement invariance with respect to demographic variables (e.g., gender).

In line with the literature above, the present study hypothesized that the TAPAS would (a) have a one-dimensional structure and demonstrate good internal consistency (Hypothesis 1), (b) be negatively associated with positive self-perception (i.e., body-self and self-esteem) and exercise addiction (Hypothesis 2), and (c) be positively associated with weight stigma and levels of general psychological distress (i.e., stress, anxiety, and depression; Hypothesis 3).

Method

Translation and Cross-Cultural Adaptation of the TAPAS

Translation and cross-cultural adaptation of the TAPAS involved a rigorous process to ensure conceptual equivalency. Two Italian experts in the field independently forward translated the TAPAS from English into Italian. Subsequently, a different independent translator back-translated the Italian version into English. This two-step translation process aimed to verify the accuracy and consistency of the translation, ensuring that the intended meaning of the items was retained (Beaton et al., 2000). The scale was then administered to a sample of 15 individuals to further assess the comprehensibility of the translated TAPAS. These participants who were not included in the formal analysis provided valuable feedback on the clarity and understandability of the items. The aim was to identify potential issues or ambiguities that might arise due to cultural or linguistic differences. Based on this pilot testing, no adjustments were made, indicating that the translated TAPAS maintained its clarity and relevance for the target population. This translation and adaptation process enhanced the reliability and validity of the TAPAS in the Italian context, ensuring that the scale accurately captured the intended constructs and could be effectively utilized in research or clinical settings within the Italian-speaking population.

Ethical Approval

The research was conducted according to the Declaration of Helsinki for medical research involving human participants and was approved by the Niccolo Cusano University Ethics Committee. All participants gave their online consent to participate in the study. The identity of the participants was anonymous, and data were stored in an encrypted online archive, accessible only to the authors of the present study.

Participants and Procedure

Between January 20 and February 1, 2024, a link to the online survey (on *Google Forms*) was advertised on several Italian online forums and social network platforms (e.g., *Facebook*, *WhatsApp*, and *Instagram*). The inclusion criteria were as follows: (a) being at least 18 years old, (b) understanding the Italian language, and (c) providing informed consent. Participants who did not meet all the criteria were excluded from the study. In total, 320 respondents clicked on the survey link. Of these, 235 completed the survey and provided consent for participation in the study. Of these, 135 were females (57.4%), and 100 were males (42.6%), with a mean age

of 35.17 years (SD = ±10.83). Most participants had a university degree (n = 139; 59.1%) and were single (n = 137; 58.3%). Regarding occupational activity, 87 were students (37%), and 79 were employed workers (33.6%). See Supplemental Table S1 for details regarding the main tests' descriptive statistics.

Measures

Sociodemographic Measures

Demographic information was collected, including age (in years), sex (male and female), height (in centimeters), and weight (in kilograms). Body mass index (BMI) was calculated by dividing the weight (in kilograms) by the height squared (in meters). This standard formula for BMI is commonly used to assess body composition and classifies individuals according to their weight versus height. To further refine the classification of participants, a BMI value was applied following the 2004 World Health Organization Expert Consultation. Participants with a BMI above 25 were classified as "overweight," while those within or below this threshold were classified as "non-overweight."

TAPAS

The TAPAS (Bevan et al., 2022) is a 10-item instrument designed to assess an individual's tendency to avoid physical activity and sports because of weight stigma and appearance-related concerns. Each of the 10 items (e.g., "I find myself avoiding participating in sport because of my weight") is rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The total TAPAS score falls within the range of 10–50, with higher scores reflecting a greater tendency to avoid physical activity and sports due to weight stigma and appearance-related concerns. The reliability of the scale is reported in the Results section.

Weight Self-Stigma Questionnaire

The 12-item Weight Self-Stigma Questionnaire (Lillis et al., 2010; Italian version: Rossi et al., 2022) is a scale that assesses an individual's own weight-related stigma and has two subfactors: self-devaluation and fear of enacted stigma. Items (e.g., "I became overweight because I am a weak person" and "People discriminate against me because I had weight problems") are rated on a 5-point Likert scale from 1 (*completely disagree*) to 5 (*completely agree*). Total scores are calculated by summing up all the items, and range from 12 to 60. Higher scores on the Weight Self-Stigma Questionnaire indicate a higher level of weight-related self-devaluation and fear of enacted stigma. Cronbach's α in the present study of the total scale was excellent (α = .93), as were the subscales (self-evaluation; α = .92; fear of enacted domains: α = .93).

Depression Anxiety Stress Scale–21

The 21-item Depression Anxiety Stress Scale–21 (Henry & Crawford, 2005; Italian version: Bottesi et al., 2015) was used to assess depression, anxiety, and stress (and psychological distress more generally). Participants indicate how much they agree with the items on a 4-point scale from 0 (*not at all*) to 3 (*very much*) on the three constructs: depression (e.g., "I felt like I had nothing to look forward to"), anxiety (e.g., "I felt close to a panic attack"), and stress (e.g., "I found it difficult to relax"). Scores on each subscale range from 0 to 21, and the total score ranges from 0 to 63 (indicating general psychological distress, given by the sum of the three subscales). A higher score on each subscale indicates greater psychological distress for each mood state. Cronbach's α in the present study for the total scale was excellent (α = .96), as were the subscales (anxiety: α = .94; stress: α = .95; depression: α = .94).

Rosenberg Self-Esteem Scale

The 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965; Italian version: Prezza et al., 1997) was used to assess self-esteem. Items (e.g., "On the whole, I am satisfied with myself") are rated on a 4-point Likert scale from 0 (*strongly disagree*) to 3 (*strongly agree*). Scores range between 0 and 30, and higher scores indicate greater self-esteem. Cronbach's α in the present study was very good (α = .88).

Body Esteem Scale

The 16-item Body Esteem Scale (Mendelson et al., 2001; Italian version: Confalonieri et al., 2008) was used to assess body esteem. Participants rate their responses on a 5-point Likert scale from 0 (*never*) to 4 (*always*). The Body Esteem Scale has three distinct subscales: appearance (10 items) regarding concerns related to physical appearance (e.g., "I worry about the way I look"), weight (eight items) regarding attitudes toward one's weight (e.g., "I really like what I weigh"), and attribution (five items) regarding perceptions of external opinions (e.g., "People my own age like my looks"). The scores for each subscale were computed by averaging the individual item scores. Notably, there are no predefined cutoff points, and higher scores are indicative of greater levels of body esteem. Cronbach's α in the present study for the global scale was very good (α = .87), as were the subscales (appearance: α = .79; weight: α = 80; attribution: α = .86).

Exercise Addiction Inventory–Revised

The six-item Exercise Addiction Inventory–Revised (EAI-R; Szabo et al., 2019; Italian EAI: Gori et al., 2023; Italian EAI-R: Soraci et al., 2023). The items (e.g., "If I have to miss an exercise session, I feel moody and irritable") are rated on a 6-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Scores range between 6 and 36; the higher the score, the greater the risk of exercise addiction. Cronbach's α in the present study was excellent (α = .93).

Data Analysis

First, the normality of the data was analyzed following Muthén and Kaplan (1985), who suggested that the skewness and kurtosis of the items should ideally remain within the range ±1. Furthermore, the assessment of multivariate normality was checked by computing Mardia's (1970) index (K) and examining asymmetry and kurtosis. Subsequent analyses included (a) descriptive statistics of the TAPAS items (i.e., means, standard deviations); (b) corrected item-to-total correlation; and (c) evaluation of internal consistency using Cronbach's α, McDonald's ω, and composite reliability (CR), where values of 0.70 and above were deemed good (Cheung et al., 2024; McDonald, 1999; Zinbarg et al., 2005).

The factor structure and its dimensionality of the Italian version of TAPAS were examined through confirmatory factor analysis (CFA). Specific indices, including nonnormed fit index (≥0.95), comparative fit index (≥0.95), root-mean-square error of approximation (≤0.06), and standardized root-mean-square residual (≤0.8), were employed to assess dimensionality (Hu & Bentler, 1999; Kline, 2023; Whittaker & Schumacker, 2022).

Finally, convergent validity and discriminant validity were examined. Convergent validity was assessed according to the latest psychometric criteria (e.g., Cheung et al., 2024), ensuring CR values ≥0.7, standardized factor loadings (λ) ≥0.5 (not significantly lower for $p < .05$), and average variance extracted (AVE) values ≥0.5. Discriminant validity was evaluated, ensuring the absence of indicator cross-loads on other constructs (Cheung et al., 2024). Additionally, the heterotrait–monotrait ratio approach was utilized to ascertain further evidence for discriminant validity, with values <0.85 indicating good discriminant validity (Cheung et al., 2024). To test for differences between groups (e.g., in BMI), student's *t* test was used (or its equivalent in case of nonnormal distributions, i.e., Mann–Whitney *U* test).

Finally, Pearson's *r* correlation coefficients (or the nonparametric equivalent in the case of nonnormal data distribution, e.g., Spearman's ρ) were calculated to establish associations between the TAPAS and other measures.

Analysis Software

The statistical analyses were conducted using JASP Version 0.19 (Jeffreys's Amazing Statistics Program Team, 2024) for descriptive, factorial, reliability, and correlational analyses. R Core Team (2021) was used (utilizing the "measureQ" package; Cheung et al., 2024) because this allows for robust indices and values that enable detailed assessment of validity, both convergent and discriminant.

Sample Size

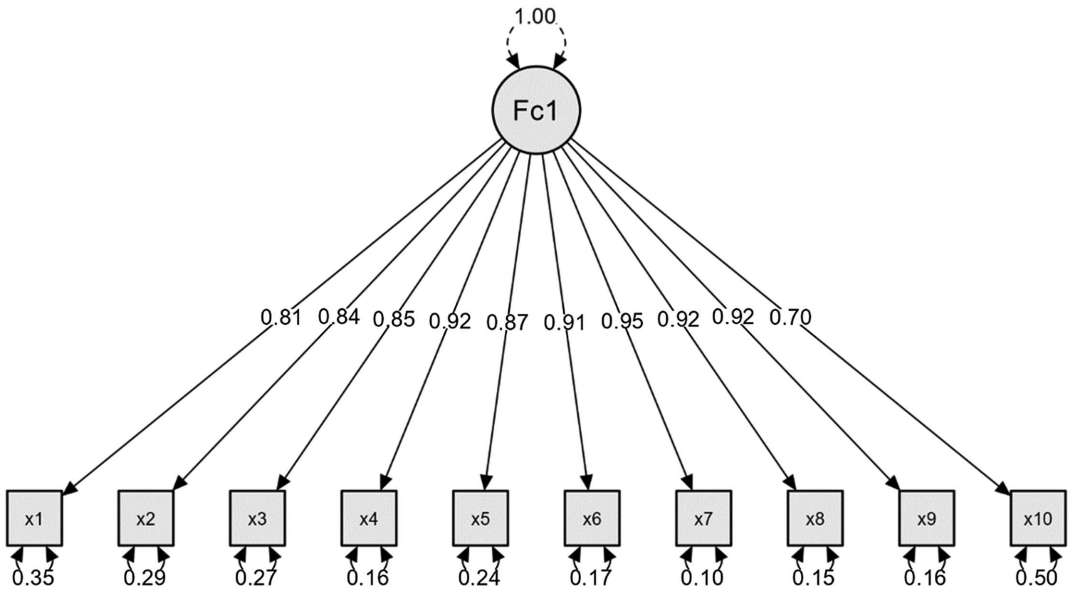
To determine an adequate sample size, the authors followed the guidelines of Kline (2023), applying the n:q rule, which considers the number of cases (*n*) relative to the number of free estimated parameters (*q*). Kline (2023) recommended a ratio of at least 10:1, meaning there should be at least 10 participants for each parameter estimated. Given that the present study's model included 21 estimated parameters, the minimum recommended sample size was 210 participants.

Results

CFA of the TAPAS

Analyzing the distribution of the TAPAS items, not all items were within the allowable limits regarding skewness and kurtosis (i.e., in the range ±1; see Table S2). The assessment of multivariate normality was checked by computing Mardia's (1970) index (*K*) and examining skewness (min = 0.19, max = 1.36, in absolute value) and kurtosis (min = 0.02, max = 1.74, in absolute value). Mardia's skewness for the skewness was $K = 2829.57$ ($p < .001$), and Mardia's kurtosis was $K = 70.28$ ($p < .001$), indicating a deviation from multivariate normality. This violation suggests the use of robust estimators (Li, 2016). Given these results and based on the results of previous studies (Saffari et al., 2023, 2024), the diagonally least weighted squares estimator was used because it is more suitable when the data are nonnormally distributed (Mishra et al., 2019). The results of the CFA were as follows: $\chi^2 = 20.08$ ($df = 35, n = 235$), $p = .98$, nonnormed fit index = 1.00, comparative fit index = 1.00, root-mean-square error of approximation = 0.00, 90% CI [0.00, 0.00], and standardized root-mean-square residual = 0.04. In addition, the AVE was 0.783 (78.3%). The results of the factor loadings were also adequate for all items (min = 0.70, max = 0.94; i.e., $\lambda_{ij} \geq 0.50$; see Figure 1). These results give good factorial

Figure 1
Model Plot of the Italian TAPAS Confirmatory Factor Analysis



Note. Standardized items factor loading. TAPAS = Tendency to Avoid Physical Activity and Sport Scale; Fc1 = TAPAS factor.

robustness to the Italian version of TAPAS based on recommendations in the literature (Hu & Bentler, 1999; Kline, 2023; Whittaker & Schumacker, 2022). See Table 1 (and Supplemental Tables S3 and S4) for details.

Convergent/Discriminant Validity and Analysis of Correlations

TAPAS scores (i.e., avoidance of physical activity) were significantly and positively correlated with scores for BMI, weight stigma, general psychological distress, anxiety, stress, and depression. Conversely, TAPAS scores were significantly and negatively correlated with scores for exercise addiction, body satisfaction (both in total and in the subfactors weight, attribution, and appearance), and self-esteem (see Table 2 and Supplemental Table S5). Convergent validity and discriminant validity (using *R*'s "measureQ" package) were investigated in further detail through the construction of a model containing the principal tests used (i.e., TAPAS, Weight Self-Stigma Questionnaire, Depression Anxiety Stress Scale–21, Rosenberg's Self-Esteem Scale, Body Esteem Scale, EAI-R). The model exhibited sufficient fit indices: comparative fit index = 0.92, nonnormed fit index = 0.93, and root-mean-square error of approximation = 0.09. No item had a standardized factor loading significantly lower than 0.7 in convergent validity, with a construct reliability of 0.96, and an AVE of 0.76 (76%). Discriminant validity showed that no items had a secondary factor loading. Moreover, the heterotrait–monotrait ratio correlation matrix (Table 3) had no values that exceeded the threshold of 0.85. Therefore, convergent and discriminant validity were adequate (see Supplemental Tables S6–S11).

Internal Consistency

To establish the internal consistency of the TAPAS, different indices, such as Cronbach's α, McDonald's ω, and CR, were employed. The Cronbach's α was .97 (95% CI [0.96, 0.97]). Similarly, the McDonald's ω had a value of 0.97 (95% CI [0.96, 0.97]). The CR was also 0.97. These results indicated excellent internal consistency for the TAPAS.

Analysis of BMI

Males (n = 100) had a mean BMI of 23.84 (SD = ±4.14), while females (n = 135) had a mean BMI of 24.68 (SD = ±4.20). This difference was statistically significant (Mann–Whitney U test) at the $p < .05$ level (Cohen's d effect size = 0.20). When the association between BMI and TAPAS was examined, 53 participants were overweight (BMI > 25) and had a higher mean score on the TAPAS (M = 28.22; SD = ±13.38) than the 182 participants who were not overweight (BMI < 25; M = 18.82; SD = ±7.63). This difference was significant using the Mann–Whitney U test ($p < .001$; Cohen's d effect size = 0.39).

Discussion

The main aim of the present study was to translate the English version of the TAPAS into Italian and investigate its psychometric properties. The study included an assessment of the validity, reliability, and gender invariance of the Italian TAPAS. The results of the CFA supported a unidimensional solution (i.e., a single factor confirming Hypothesis 1), aligning with the results of previous studies (Bevan et al., 2022; Saffari et al., 2023). Using the most recent psychometric guidelines and recommendations (Cheung et al., 2024), the reliability of the TAPAS was excellent. These results indicate that the TAPAS is appropriate for comparing the tendency to avoid physical activity across Italian males and females.

The present study contributes to the field by providing strong evidence of the convergent validity of the TAPAS. More specifically, the AVE results exceeded the suggested ideal threshold of 0.50, indicating that the items within the TAPAS adequately captured the essence of that factor (i.e., the tendency to avoid physical activity). Therefore, these results indicate robust convergent validity, because high AVE scores imply a higher correlation between items of the same construct. On the other hand, the present study also found that the heterotrait–monotrait ratio values were below the threshold of 0.85. This suggests that the TAPAS has a distinct factor. Moreover, the robustness of the discriminant validity was supported by the non-cross-loading of the items, indicating that the items reflected the indicated construct (i.e., the tendency to avoid physical activity and sport). Finally, the correlation results further supported both convergent and

Table 1
Factor Loadings of TAPAS Items (N = 235)

						95% confidence interval		
Factor	Item	Estimate	*SE*	*z*-value	*p*	*LL*	*UL*	Std. est.
Factor 1	x1	0.871	0.058	15.101	<.001	0.758	0.984	0.809
	x2	0.950	0.054	17.540	<.001	0.844	1.056	0.841
	x3	0.850	0.054	15.657	<.001	0.744	0.957	0.853
	x4	1.099	0.051	21.711	<.001	1.000	1.198	0.918
	x5	0.937	0.060	15.680	<.001	0.820	1.054	0.870
	x6	0.874	0.059	14.851	<.001	0.758	0.989	0.913
	x7	1.146	0.051	22.587	<.001	1.047	1.246	0.949
	x8	1.073	0.047	22.664	<.001	0.981	1.166	0.921
	x9	1.088	0.053	20.584	<.001	0.985	1.192	0.919
	x10	0.761	0.062	12.175	<.001	0.638	0.883	0.705

Note. Estimate = nonstandardized item factor loading; Std. est. = standardized item factor loading; *SE* = standard error; TAPAS = Tendency to Avoid Physical Activity and Sport Scale; *LL* = lower limit; *UL* = upper limit.

Table 2
Spearman's ρ Correlations Among Main Tests Used (N = 235)

Measure	1	2	3	4	5	6
1. TAPAS	—					
2. Self-esteem	−.61***	—				
3. General psychological distress	.55***	−.51***	—			
4. Exercise addiction	−.20**	−.04	−.26***	—		
5. Weight stigma	.71***	−.54***	.65***	−.20**	—	
6. Body mass index	.42***	−.11	.21**	−.33***	.40***	—

Note. TAPAS = Tendency to Avoid Physical Activity and Sport Scale.
** $p < .01$. *** $p < .001$.

discriminant validity. These results show that the Italian version of the TAPAS is a valid and reliable instrument.

TAPAS scores were also negatively associated with scores on the scales assessing self-esteem, body esteem, and exercise addiction, indicating that individuals who avoid PA and sport have poorer self-esteem and body esteem and are less likely to be addicted to exercise (confirming Hypothesis 2). These findings are consistent with previous literature suggesting associations between lower self-esteem and body esteem and lower participation rates in PA and sport (Zamani Sani et al., 2016). Increasing self-esteem and body esteem may be areas to address in interventions developed by health care practitioners to support PA and sport participation, especially because some previous research suggests self-esteem may be a mitigating factor between PA participation and body image dissatisfaction (Schmalz, 2010). Moreover, it was expected that individuals who obsessively exercise would be participating in PA and sport at much higher rates than the general population and, therefore, not avoiding PA and sport, which the present study's results indicated. However, causal factors of both avoidance of PA and excessive exercise require further investigation to understand the underpinning psychosocial factors in the avoidance of PA and sport.

Previous evidence has suggested that individuals who are overweight or who have obesity may experience weight stigma at greater rates since individuals' weights are consistently visible and judged across multiple settings (e.g., health care visits, work offices, social occasions; Puhl & Brownell, 2003). The present study's results indicate that TAPAS scores were positively associated with BMI. That is, individuals who are categorized as overweight were more likely to avoid PA and sport (and score higher on the TAPAS). Moreover, TAPAS scores were associated with scores on scales for general psychological distress (i.e., anxiety, stress, and depression) and weight stigma (confirming Hypothesis 3). This finding supports previous research, showing that individuals are more likely to avoid PA and sport if they self-stigmatize about their own weight (Bevan et al., 2021, 2022) and have poorer mental health outcomes (Bevan et al., 2023). Bevan et al. (2023) proposed a conceptual model, which suggests that individuals who have internalized weight stigma may feel poorly about their weight and want to avoid environments where their bodies are at risk of judgment and critique, subsequently exacerbating psychological distress. Although this model requires testing, the present findings support an association between both weight stigma and psychological distress, with the tendency to avoid PA and sports. Coping mechanisms to increase physical activity levels among those who experience weight stigma include exercising in safe spaces, such as at home, or exercising in public (e.g., gyms, health centers) at times when there are fewer individuals present (Thedinga et al., 2021).

Beyond the utility of the Italian version of the TAPAS in understanding psychosocial factors in the tendency to avoid PA and sports, the results of the present study show that weight stigma and appearance-related concerns play a role in the tendency to avoid PA and sports in an Italian context. This is particularly relevant since research, economic resources, and policies addressing structural and environmental factors have not increased PA among the general population (Weed, 2016). Therefore, psychosocial factors such as weight stigma and appearance-related concerns need to be considered by public health policymakers, health communications experts, and health practitioners. Presently, such health practices and promotion approaches contribute to weight stigma (O'Brien et al., 2020); therefore, they are only likely to contribute to individuals avoiding PA and sports and the subsequent health implications. Instead, it is recommended that health approaches should focus on factors such as enjoyment rather than weight loss to promote PA participation, and environments (e.g., gyms) should support PA across diverse body sizes.

Table 3
Heterotrait–Monotrait Ratio (N = 235)

TAPAS	*SE*	GPD	EX	WS	BSE
0.71					
0.65	0.51				
0.22	0.31	0.31			
0.83	0.52	0.72	0.24		
0.50	0.74	0.53	0.51	0.65	

Note. SE = self-esteem; GPD = general psychological distress; EX = exercise addiction; WS = weight stigma; BSE = body self-esteem; TAPAS = Tendency to Avoid Physical Activity and Sport Scale.

Limitations and Future Directions

Although the results of the present study are promising, there are caveats regarding the interpretation of these results. First, the group of participants consisted exclusively of a convenience sample from the Italian population (approximately 60% women) without any formal diagnosis of clinical pathologies (e.g., anxiety, stress, depression). This may limit the generalizability of the results to a wider population. Second, although the sample size was adequate based on several guidelines and recommendations (e.g., Kline, 2023;

Kyriazos, 2018), the small sample size in the present study could have affected the statistical power and accuracy of the CFA. Therefore, future studies should aim to recruit larger samples when evaluating the psychometric properties. Third, social desirability biases may have influenced participants' responses during survey completion, potentially affecting the accuracy of the data collected. The cross-sectional nature of the data poses other limitations. For example, the study was unable to monitor longitudinal changes over time, and this places limitations on determining the causal nature of the relationships between the study variables. Another limitation is not having data on the participants' actual physical activity (e.g., how many hours per week of physical activity and sport they actually engaged in). Future research should include data examining physical activity and sport participation with the tendency to avoid physical activity and sports in an Italian context. Another important limitation is the use of BMI. Although the main guidelines on its calculation were followed, it must be interpreted with caution because it does not take into account several other factors that affect weight, such as lean or fat mass, or take into account that BMI calculations used self-report data rather than objective measures of height and weight. Finally, another limitation in the present study is the factor model analysis using CFA. Although theoretically the TAPAS is a unidimensional measure, supported by previous international validations (Bevan et al., 2022; Saffari et al., 2023), future studies could test alternative factorial solutions (e.g., 2-factor models, bifactor models) to examine further the dimensional structure of TAPAS.

Future research efforts should address these limitations by employing larger and more representative samples of Italian participants to validate the initial findings reported here. For example, studies incorporating larger nationally representative samples with more equal gender representation would improve the generalizability of the results, as would longitudinal research. This method would allow stronger validation of the factorial solution proposed in the present study. It would also allow for understanding the progression of dropout from physical activity and sport participation and its relationship to the psychosocial factors and scales examined here.

Conclusion

Despite these important limitations, the results of the present study suggest that the Italian version of the TAPAS is a psychometrically robust scale with a well-defined factorial structure and good validity and reliability. Therefore, the instrument can be used to better understand the motivations underlying physical inactivity, such as weight stigma and concerns about self-body appearance. This psychometric instrument will help develop programs and interventions that address these factors. In turn, this could help counter the decline in physical activity rates among the Italian population and the resulting health implications.

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